

**TWO NEW WESTERN TIGER BEETLES, WITH
NOTES (COLEOPTERA—CICINDELIDAE).**

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The writer would like to take this opportunity to express his gratitude to Charles W. Leng whose excellent collection largely forms a basis for the writer's studies in the *Cicindelidae*. Thanks are also extended to those who contributed specimens recorded in what is to follow, to Dr. E. C. Van Dyke for his advice and encouragement and to R. P. Allen whose collecting ability made possible the new descriptions contained herein.

***Cicindela alleni* sp. nov.**

Medium sized, shining blue-green, immaculate, bare above, sparsely hairy beneath. *Female*.—Head with eyes wider than pronotum, bare except for two ocular setae, granulate-strigate, impunctate; front moderately deeply excavated, striae prominent: clypeus and genae bare; labrum wide, produced medially, with a single sharp median tooth, white, narrowly margined with black; palpi purplish-green, maxillary sparsely hairy, second segment of labial densely hairy; mandibles tridentate, cupreous black with white base; antennae green, first to fourth segments with prominent terminal setae, bases bare. *Thorax* bare, about as long as wide, side margins rounded, sub-parallel, slightly narrowing at base, widest at about middle, basal and apical transverse impressions deep, median longitudinal impression prominent; middle of disk along impression and side margins transversely strigose, remainder smooth with occasional shallow, irregular impressions; color shining green, faintly sericeous, impressions dark purple. *Elytra* gradually widening to apical third, evenly rounded to apex, apical margins unserrated; surface uniformly punctate throughout, punctures separated by about their own widths, basal punctures only slightly deeper than apical, humeral impression with large setigerous punctures confined to area immediately behind umbone, irregular discal row of prominent foveae extending to apex, terminating near suture; color uniformly shining blue-green, slightly sericeous. *Beneath* sparsely pilose, pile on side margins of basal abdominal segments decumbent, few erect hairs in center of abdominal segments; head and thorax blue-green with tinges of cupreous and purple, abdomen cupreous-purple basally, fourth and fifth segments reddish-brown;

legs green, sparsely clothed with white hair, front coxae and femora more densely pilose than rest of surface, trochanters bare. Length 10.8 mm., width 4.0 mm.

Male same as female except for the color which is dull green (due to its being greasy) except for side margins of elytra which are as in female, smaller size and by having more reddish-brown on abdomen beneath. Length 9.0 mm., width 3.5 mm.

Holotype female, allotype male in the author's collection, collected in the Signal Mts., Howard Co., Texas, August 28, 1938, by R. P. Allen after whom the author takes pleasure in naming the species.

When first observed this species was thought to be the green variation of *horni* which occurs in New Mexico and Texas but upon careful examination it proved not to be this species and sufficiently different from any previously described to merit specific standing. From *horni* and *horni ritteri* it can at once be distinguished by the much deeper excavation between the eyes, deeper and more pronounced head and pronotal striae and by having the elytra uniformly punctate throughout rather than only basally as in *horni*. *C. alleni* resembles *horni* in its shining appearance, general shape of elytra and in being only sparsely pilose beneath.

C. alleni resembles *pimeriana* a good deal but may be easily separated because the latter species has a short flat labrum, densely pilose front and basal antennal segment, thorax widest in front of middle, elytral apices serrate, and beneath it is moderately clothed with long white pile. Of the species previously described, *alleni* is probably most closely related to *nigrocoerulea* and its varieties *robusta* and *borwditchi* being readily separated, however, by its narrow form, produced labrum, deeply impressed, bare pronotum and by its shining color.

Cicindela nevadica subsp. **tubensis** subsp. nov.

Medium sized, brilliant cupreous, markings as in *nevadica* subsp. *knausi* Leng, pronotum and head sparsely clothed with white pile, beneath densely clothed with decumbent white pile. *Female*.—Head granulate-strigate, clothed throughout with short white pile; clypeus with sides and center clothed with short white pile, genae moderately densely pilose; labrum white, short, not produced in middle, unidentate, submarginal row of hair anteriorly; palpi testaceous except for outer portion of last segment which is purple; mandibles white at base, apically cupreous-black; antennae with segments one to four cupreous-red, segment one uniformly, sparsely clothed with

white pile above. *Pronotum* brilliant cupreous, nearly square, impressions moderately deep, surface granulate-strigate, sides, front margin and edges of median longitudinal impression clothed with short white pile. *Elytra* cupreous, uniformly, shallowly punctate, punctures green; widest at about middle, apex broadly emarginate; markings consist of broad marginal band connecting all lunules, humeral lunule obliquely descending, moderately hooked at tip, middle band broad, complete, narrowly separated from suture, recurved at tip, inner margin of descending arm irregular, apical lunule broad, lateral arms projecting toward base. *Beneath* cupreous with occasional greenish tinges, abdomen piceous medially; sides of thorax and abdomen densely clothed with short decumbent white pile; legs cupreous, sparsely clothed with erect white pile, trochanters brown, those of front and middle legs with prominent sub-terminal hair. Length 11.5 mm., width 4.1 mm.

Male same as female except for sexual differences and in having the humeral lunule broadly connected to middle band, apical lunule with inner projections only faintly indicated. Length 10.5 mm., width 4.0 mm.

Holotype female, allotype male in the author's collection, collected at Tuba City, Coconino Co., Arizona, July 5, 1937, by R. P. Allen to whom the author is indebted for the privilege of studying and making known this subspecies. Five male, nine female topotypical paratypes deposited in the collections of R. P. Allen and the author.

This subspecies properly belongs with *nevadica* and is closely associated with subspecies *knausi* from which it can be distinguished by its brilliant cupreous color, lack of green or blue, and its confined distribution in northern Arizona. The series is uniformly cupreous but does show considerable variation in the extent of the markings. In one specimen the inner tip of the middle band is connected with the apical lunule. None of the specimens are as elongate as *cuprascens* subsp. *sperata* and do not have the markings as slender as in that subspecies.

During the past several years the author has accumulated a good deal of previously unpublished information concerning the distribution of several species of western tiger beetles and it seems desirable, at this time, to make known a portion of this information.

Cicindela tranquebarica borealis Harris

A large series of a form referable to this variety was taken at Benton's Crossing, Mono Co., California, September 8, 1935 (F. R.

Platt, M. Cazier). In the evening just before sundown large numbers were collected by hand under cow chips on the dry alkali lakes. During the day they were taken in flight on these dry lakes as well as in the vicinity of Owens River. They are slow fliers and are easily captured.

Cicindela tranquebarica kirbyi Lec.

This variation has, as far as I know, never been previously recorded from California. Typical specimens were taken at Barstow, San Bernardino Co., California, April 15, 1938 (T. G. H. Aitken), and in Cuyama Canyon along the Santa Maria River, Santa Barbara Co., California, March 6, 1937 (H. B. Leech, E. S. Ross, M. Cazier). The distribution has thus been extended from Colorado and New Mexico through Utah (Willow Creek, September 20, 1932, Marysvale Canyon, June 9, 1924, J. Sugden) and California by way of Owens Valley, Barstow and the Santa Maria River to the Pacific Coast.

The specimens taken along the Santa Maria River vary in color from cupreous-brown to cupreous-green, the latter specimens resemble, to a marked degree, specimens of subspecies *vibex* taken at Coalinga, Fresno Co., California, March 5, 1937 (M. Cazier). These specimens of *vibex* have abnormally wide lunules but are, as a rule, smaller in size than the specimens of *kirbyi*.

Cicindela tranquebarica propinqua Knaus

Previously recorded from Nevada and Death Valley, California but recently taken in considerable numbers in California north of the Tehachapi Mts. in the following localities: Exeter, Tulare Co., March 28, 1934 (R. P. Allen); Kerman, Fresno Co., October 30, 1927 (R. S. Wagner); Helm, Fresno Co., March 16, 1924 (R. S. Wagner); Wheatville, Fresno Co., March 4, 1938 (M. Cazier).

Cicindela tranquebarica inyo Fall and *owena* Fall

A long series collected in Owens Valley, Inyo Co., California, May 20 to June 2, 1937 by members of Dr. E. C. Van Dyke's summer 49 course shows every gradation in color from typical black *owena* to the blue and green *inyo*. One specimen referable to *owena* is from Tejon, Kern Co., California, July 1932.

Cicindela tenuicincta Schpp.

This distinct species was taken sparingly by Dr. E. C. Van Dyke and members of his summer course at Owen's Lake, Inyo Co., California, May 20 to June 2, 1937. Most of the specimens exam-

ined to date from Utah have been brown in color with little variation, whereas, in the California series there are several specimens that are definitely cupreous-green throughout. This same color variation exists also in *hirticollis* and *bellissima*, etc., the latter species also occurring in a black phase.

Cicindela plutonica Casey

Specimens of this rare and desirable species were taken by H. P. Lanchester at Parma, Idaho, October 14, 1932, at a relatively low altitude. The species is undoubtedly alpine since it occurs only at high elevations in the southern portion of its range. This progression also exists in *longilabris*.

Cicindela eureka Fall

This species has, up to now, been known only from a comparatively small area in Humboldt Co., California and southwestern Oregon. I have on hand one typical specimen collected at Salem, Oregon, September 4, 1932 (Joe Schuh).

Cicindela pusilla lunalonga Schpp.

Recorded previously from California and Oregon but also now known from Prescott, Arizona, June 1909 (H. Kusher). An interesting black variation has been collected by P. H. Timberlake at Riverside, Riverside Co., California, May 24, 1925 (in river bottom). In the author's opinion these black individuals are direct offshoots of *lunalonga*, whereas, larger, more parallel sided specimens taken at Benton's Crossing, Mono Co., California, July 6, 1935 (F. R. Platt), seem to be more closely related to *pusilla* or *pusilla imperfecta*. This complex appears to be very plastic, new variations appearing in almost every individual locality and even within the same locality.

Cicindela lepida Dej.

Known only from various localities in and east of New Mexico until a recent collection by R. P. Allen in Tuba City, Coconino Co., Arizona, July 4, 1937. All specimens taken are typical of those taken in eastern localities.